ABSTRACT

A pure water tank reduces stress to be applied to the tank when pure water in the tank freezes, to thereby prevent the deformation or breakage of the tank without thickening the wall of the tank. The tank has inner side-walls to define a pure water zone. On the outer side of the inner side-walls, an antifreeze zone is defined. The antifreeze zone holds antifreeze having a freezing point lower than a lowest temperature of a service temperature range of the tank. The density of the antifreeze increases as the temperature thereof decreases. The width of the antifreeze zone is set to satisfy $D \geq \alpha \log_e(H) + d_0$, where H is the height of the antifreeze zone.